16. The general prognosis of fever is favourable, there being 14 chances to 1 that the patient will recover.

17. The prognosis of fever becomes less favourable as the patient is advanced in life, the intensity of the disease being nearly twice as great at 41 years of age as at 21.

18. The prognosis of fever is one-third more favourable among females than males.

19. The prognosis of fever is more favourable from June to December than from January to June.

20. The prognosis of fever is one-half more favourable among patients who come under medical treatment before the 7th day of the disease than among those who are admitted at a later period.

21. The prognosis of fever is unfavourable when there are cerebral or thoracic complications.

22. The second week of fever is the most dangerous. Out of 1000 cases passing through this week 82 died.

On the Rate of Mortality amongst Officers retired from the Indian Army,
By ROBERT CHRISTIE, ESQ., F.S.S.
[*Read before the Statistical Society of London,* 18*th June,* 1838.]

IN the year 1836 I had occasion to investigate, for a Society* with which I am connected, the terms upon which a life policy commenced in India ought to be continued in this country, regard being had to the three classes of persons whose interests are more or less affected by the terms fixed upon, viz., holders of policies on lives retiring from an Indian to a British residence; the holders of policies on lives remaining in India; and the holders of policies on lives permanently residing in Europe.

It is evident that one of the principal elements in the solution of the problem is the rate of mortality which obtains amongst persons after retiring from an Indian residence. On enquiry at the India House and elsewhere, of persons extensively connected with India, I found a very general opinion to exist, that the lives of such persons had received considerable damage by a residence in India, and that the Northampton Table of Mortality, published in 1783 by Dr. Price, might be taken as a tolerably accurate measure of the mortality among such persons. I could not, however, ascertain that these opinions were founded on any basis which could be relied upon, and as I believed that there existed materials sufficient to form a rate of mortality which might serve my purpose, and be useful to others, I applied for and obtained access to the Records of the India House. From these I extracted a list of all the officers who had retired from the Indian army between the years 1760 and 1836, containing—

1. The name of every officer.
2. The presidency to which he belonged.
3. The date of his appointment.
4. The date of the death of such as had died.

From these data, and taking 18 as the average age of arrival of cadets in India (it having been ascertained to be so within a very small fraction), I deduced—

* The Universal Life Assurance Society.

1. The number of years each officer resided in India.
2. His age at retirement.
3. The number of years he lived after retirement till his death, or till the end of 1835.
4. His age at death.

These particulars were entered on the left of sheets of paper ruled with vertical as well as horizontal lines, that the years of existence after retirement might be marked under the respective ages from 19 to 88, entered along the top, distinguishing the deaths by a D, under the ages at which they respectively occurred. Then, by collecting together the number of marks and the number of D's at every year of age, the number living and the number dying at that age were obtained, as shewn in columns B and C in the subjoined Table; and from these were calculated the rate of mortality per cent., as shewn in column D.

It was found necessary to exclude from the list all medical and clerical gentlemen, as their ages on appointment could not be ascertained with certainty.

Preparatory Table of the Mortality amongst Officers retired from the Indian Army.

Age.	Number Living.	Number of Deaths.	Deaths per Cent. by Experience.	Deaths per Cent. by Adjusted Curve.	Calculated No. of Deaths for No. Living, at each age.	No. of Deaths up to each age by Experience.	No. of Deaths up to each age by Adjusted Curve.
A.	B.	C.	D.	E.	F.	G.	H.
19	1	0		1·04	·01		
20	1	0		1·05	·01		
21	5	0		1·06	·05		
22	8	0		1·07	·09		
23	10	0		1·08	·11		
24	16	0		1·09	·17		
25	21	1	1·09	1·10	·23	1	1
26	24	0		1·11	·27	1	1
27	34	2		1·12	·38	3	1
28	43	2		1·13	·49	5	2
29	61	2		1·15	·70	5	2
30	88	1		1·17		6	3
31	112	0		1·19	1	6	4
32	127	0		1·21	1	6	6
33	146	2	1·37	1·23	2	8	8
34	167	3	1·80	1·26	2	11	10
35	179	2	1·12	1·29	2	13	12
36	193	2	1·04	1·32	3	15	15
37	208	2	·96	1·35	3	17	18
38	233	5	2·14	1·39	3	22	21
39	247	1	·40	1·43	4	23	25
40	266	5	1·88	1·47	4	28	29
41	298	3	1·03	1·52	4	31	33
42	320	5	1·56	1·57	5	36	38
43	375	9	2·41	1·63	6	45	44
44	438	10	2·28	1·71	7	55	51
45	478	10	2·09	1·77	8	65	59
46	518	13	2·50	1·86	10	78	69
47	551	10	1·81	1·94	11	88	80
48	519	9	1·73	2·04	11	97	91
49	486	4	·82	2·13	10	101	101
50	467	8	1·71	2·23	10	109	111
51	463	8	1·72	2·34	11	117	122
52	457	9	1·96	2·46	11	126	133
53	395	11	1·78	2·58	10	137	143
54	361	7	1·94	2·72	10	144	153
55	334	12	3·59	2·86	10	156	163
56	302	12	3·97	3·00	9	168	172
57	288	7	2·43	3·15	9	175	181
58	280	10	3·57	3·31	9	185	190
59	267	11	4·12	3·48	9	196	199
60	255	13	5·09	3·66	9	209	208
61	243	12	4·93	3·84	9	221	217
62	226	7	3·09	4·04	9	228	226
63	216	9	4·17	4·25	9	237	236
64	204	6	2·94	4·47	9	243	247
65	195	5	2·56	4·72	9	248	256
66	190	13	6·84	4·99	9	261	265
67	177	13	7·34	5·21	9	274	274
68	163	9	5·52	5·58	9	283	283
69	157	9	5·73	6·01	9	292	292
70	139	9	6·47	6·50	9	301	301
71	113	5		7·05	8	306	309
72	89	12		7·66	7	318	316
73	61	7	8·18	8·33	5	325	321
74	50	1		8·92	5	326	325
75	37	2		9·58	4	328	329
76	33	5		10·26	3	333	332
77	25	1		10·96	3	334	335
78	22	5		11·68	3	339	338
79	16	1		12·42	2	340	340
80	14	1		13·18	2	341	342
81	10	3		13 98	1	344	343
82	5	1	15·38	14·07	1	345	345
83	4	1		15·09	·6	346	344
84	3	0		15·88	·5	346	345
85	1	0		17·53	·2	346	346
86	1	0		19·35	·2	346	346
87	1	0		21·62	·2	346	346

Having now detailed the process of arranging the data,* and obtaining therefrom the rate of mortality at every age, it becomes necessary to describe the method which has been adopted in adjusting the irregularities of the same, in order to obtain a law of mortality applicable to practical purposes. Column D of the preceding table shews the mortality per cent. at every age, deduced from columns B and C, and exhibits conspicuously the irregularities of the unadjusted table of the observations. But to render these still more apparent, it was drawn on a diagram of curves, the zigzag line shewing the rate of mortality which actually obtained at every age ; the ages being arranged down the left of the diagram, and the mortality per cent. in numbers along the top, shewing the comparative lengths of the ordinates of the curves measured from the left of the diagram at each age.†

Through this line was drawn the continuous curve bisecting the irregularities of the first, *including* and *excluding* equal spaces on either side. The ages on the side, and the numbers along the top, apply equally to this and to all the other curves on the same board ; and the adjusted mortality per cent. in column E of the table corresponds with that shewn by this curve.

To ascertain whether I had taken any unjustifiable liberty with the original observations in this adjustment, I made the calculations represented in column F, which shews the number of deaths to be expected from the actual number living at each year of age. And then the actual deaths in C and calculated deaths in F were added from the beginning of the table to each year of age, and the results are shewn in columns G and H.

By casting the eye down these columns it will at once appear that the number of actual and of calculated deaths correspond so repeatedly throughout the period, as well as at its conclusion, as to leave no doubt of the correctness of the adjustment.

The accuracy of the adjustment being thus established, there is no difficulty in forming from it, in the usual manner, a table of the law of mortality.

Before concluding, I would solicit attention to a brief comparison of the rate of mortality of officers retired from the Indian army with other classes of persons residing in this country ; and for this purpose I have prepared the following table of comparative rates, shewing in column

A, the mortality per cent. according to Mr. Milne's Carlisle experience.
B,   „   „   Mr. A. Morgan's Equitable experience.
C,   „   „   Experience of Retired Officers.
D,   „   „   Dr. Price's Northampton experience.

Curves corresponding with these rates were also drawn on the diagram.

* The original papers were laid upon the table at the meeting, and the author will be happy to shew them to any Fellow of the Society desirous of inspecting them, at the office of the Universal Life Assurance Society, No. 1, King William Street, City.

† This diagram was exhibited to the meeting, and may still be seen at the rooms of the Statistical Society.

A Comparative Table of the Rates of Mortality per Cent., from the Ages of 20 to 80, according to the

Age	Carlisle Experience, by Mr. Milne.	Equitable Experience, by Mr.A.Morgan	Experience of Retired Officers, by Mr.R.Christie	Northampton Experience, by Dr. Price.	Age	Carlisle Experience, by Mr. Milne.	Equitable Experience, by Mr.A.Morgan.	Experience of Retired Officers, by Mr.R.Christie	Northampton Experience, by Dr. Price.
	A.	B.	C.	D.		A.	B.	C.	D.
20	·71	·73	1·05	1·40	51	1·43	1·61	2·34	2·95
21	·69	·72	1·06	1·48	52	1·52	1·72	2·46	3·04
22	·70	·72	1·07	1·50	53	1·62	1·88	2·58	3·14
23	·70	·73	1·08	1·53	54	1·69	1·98	2·72	3·24
24	·71	·73	1·09	1·55	55	1·79	2·08	2·86	3·35
25	·73	·76	1·10	1·58	56	1·90	2·25	3·00	3·47
26	·74	·76	1·11	1·60	57	2·09	2·47	3·15	3·59
27	·77	·77	1·12	1·63	58	2·42	2·67	3·31	3·72
28	·87	·78	1·13	1·65	59	2·83	2·92	3·48	3·87
29	·98	·78	1·15	1·68	60	3·35	3·15	3·66	4·02
30	1·01	·81	1·17	1·71	61	3·58	3·32	3·84	4·19
31	1·02	·82	1·19	1·74	62	3·74	3·48	4·04	4·32
32	1·01	·85	1·21	1·78	63	3·83	3·68	4·25	4·52
33	1·00	·88	1·23	1·80	64	3·98	3·90	4·47	4·67
34	1·01	·91	1·26	1·84	65	4·11	4·28	4·72	4·90
35	1·02	·92	1·29	1·87	66	4·25	4·70	4·99	5·15
36	1·06	·95	1·32	1·91	67	4·44	5.07	5·21	5·43
37	1·09	·99	1·35	1·94	68	4·64	5·48	5·58	5·75
38	1·11	1·05	1·39	1·98	69	4·91	6·00	6·01	6·09
39	1·19	1·08	1·43	2·02	70	5·16	6·39	6·50	6·49
40	1·30	1·10	1·47	2·09	71	5·89	6·82	7·05	6·94
41	1·33	1·13	1·52	2·16	72	6·81	7·32	7·66	7·46
42	1·44	1·15	1·57	2·24	73	7·81	7·90	8·33	8·06
43	1·46	1·16	1·63	2·29	74	9·02	8·58	8·92	8·77
44	1·48	1·20	1·71	2·35	75	9·55	9·30	9·58	9·61
45	1·48	1·27	1·77	2·40	76	10·30	9·81	10·26	10·24
46	1·48	1·28	1·86	2·46	77	10·74	10·48	10·96	10·81
47	1·46	1·33	1·94	2·52	78	10·88	11·26	11·68	11·30
48	1·39	1·38	2·04	2·59	79	11·84	12·06	12·42	12·17
49	1·37	1·42	2·13	2·69	80	12·17	13·29	13·18	13·43
50	1·34	1·49	2·23	2·84					

On this subject it will be useful to refer again to the diagram of curves; from the inspection of which it is manifest that though the lives of gentlemen retiring from an Indian residence are inferior to the selected lives of the Equitable Assurance Society, or those indicated by the Carlisle table, they are far superior to the lives indicated by the Northampton table.

It cannot be otherwise than highly gratifying to the numerous persons connected, directly or indirectly, with Indian residents, to know that the constitutions of persons returning from a residence in that climate have not sustained that extent of damage which has been generally supposed; but that, on the contrary, on returning to their native country, they take their station amongst its healthiest inhabitants. It is not our purpose, on the present occasion, to investigate the rate of mortality prevailing amongst military officers while serving in India; but it may be mentioned, by way of illustration, that, at the age of 40, for example, the rate of mortality among officers serving in India is 3·86 per cent.; whereas, according to the foregoing tables, the rate of mortality of officers of the same age after retirement is only 1·47 per cent. From these

facts, it appears that the retired officers constitute, as regards health, a selected class, consisting of men whose constitutions have been originally stronger than those of their brethren, and who have survived the effects of the Indian climate during the usual period of service there, or of men whose prudence may have so regulated their habits as to diminish the injurious effects of the climate, or pointed out to them the propriety of leaving it before their health had sustained irreparable injury.

Fires in London, with an Account of the London Fire-Engine Establishment.

THE formation of the " London Fire-Engine Establishment," which took place in the year 1832, has afforded an opportunity for collecting accurate information with respect to the number, causes, and extent of fires in the metropolis and its vicinity. It is surprising that, notwithstanding the obvious advantages of combination and unity of action on occasions when the lives and fortunes of thousands are often exposed to the most imminent risk, and with the successful example of the " Corps des Sapeurs Pompiers" in France, the insurance offices should so long have maintained the old and expensive system of separate engine establishments. So far back as the year 1808, Sir Frederick Morton Eden, then chairman of the Globe Insurance Office, entered into communication with the several offices for the purpose of inducing them to co-operate in the formation of a general fire-engine establishment. His proposition was, that each office joining the association should depute one or two members to form an engine committee, who should have control over the direction and expenditure of the establishment, but that no engine-houses or stables should be purchased or built without the concurrence of all the offices interested. Each office was, at the outset, to furnish a gang of 20 firemen, of whom 10 were to be first-class men, who should receive allowances for all fires they attended, and 10 second-class men, who were to be paid only when specially authorised to attend; and all future appointments and other matters respecting the firemen were to be managed by the engine committee. Each office was to pay an equal contribution towards the expenses of the establishment. This attempt, however, failed; for in December of that year Sir F. Eden writes, that " he had ascertained that it was in vain to expect co-operation from any other insurance office, except the Atlas, in the formation of a joint engine establishment, and that the Globe office had consequently abandoned the endeavour to effect it."

About the year 1825 three offices, the Sun, Union, and Royal Exchange, formed a union—the whole of their engines and men being placed under the charge of a superintendent, who took the command when the former were called out, and who checked the pay-bills. The Atlas and Phœnix subsequently joined the brigade.

It was not, however, until the year 1833 that this union extended itself to the principal remaining offices. Previous to 1831 considerable changes had taken place among the insurance offices: several of them had altogether declined fire insurance, and others had greatly reduced their engine establishments. It is stated that the number of fire-engines belonging to the different London companies in that year was